



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,720	09/29/2003	Xianrui Huang	134199	1109
41838	7590	08/30/2004	EXAMINER	
GENERAL ELECTRIC COMPANY (PCPI)			ARANA, LOUIS M	
C/O FLETCHER YODER			ART UNIT	
P. O. BOX 692289			PAPER NUMBER	
HOUSTON, TX 77269-2289			2859	

DATE MAILED: 08/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/672,720

Applicant(s)

HUANG ET AL.

Examiner

Louis M. Arana

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-24 and 26-45 is/are rejected.
- 7) ☒ Claim(s) 12 and 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. This communication is responsive to your amendment filed June 17, 2004. Claims 1-45 are currently pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11, 13-24 and 26-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. P.N. 4,672,346 (Miyamoto) in view of Sellers P. N. 5,431,165.

Miyamoto discloses a permanent magnet assembly. Applicant's attention is directed to Fig. 11 and corresponding description. Permanent magnets fixed to a support or yoke 3, have holes 18 on which are inserted in movable arrangement, shim rods or plugs 19. Actuators 21, in the form of screws, effect the movement of plugs 19. The magnet assembly is intended for NMR-CT, which is for generating images of a subject. The difference between the prior art as represented by Miyamoto and the claims at Issue, is that Miyamoto does not specifically describe movable plug or shim 19 as made of a permanent magnet. In fact, plug 19 is only described as a "rod-like soft magnetic material". This difference however, would have been obvious to the artisan of ordinary skill in the art at the time the invention was made. The use of permanent magnets for

shimming of magnetic fields in the MRI magnet construction art is well known. One example of this, are the teachings of Sellers. Sellers in an arrangement similar to Miyamoto's (see Fig.3 e.g.) teaches the use of permanent magnetic material, which may include ferro-magnetic material. See col. 2, lines 63-65. The use of such permanent magnet material including a combination with a metal backing plate in Miyamoto, would result in the instant invention as claimed.

Response to Arguments

3. Applicant's arguments filed June 17, 2004 have been fully considered but they are not persuasive. Applicant argues that because there is a complete lack of any motivation or suggestion in the art for the modification proposed by the Examiner, the Examiner has failed to establish a prima facie case of obviousness.

The Examiner disagrees with this contention. There are in fact numerous motivations in the art to adopt the modification proposed by the examiner. Some of which are explicitly set forth by the prior art. For example, one advantage offered by replacing the elements 19 of Fig. 11 of Miyamoto with permanent magnet material would be that the same materials are used (i.e. permanent magnet shims movable inside a permanent magnet) resulting in a more stable temperature sensitivity for the overall assembly. Such conclusion can be reached only if the general knowledge in the art is properly assessed. For this, it is necessary to carefully study the prior art, as inventions do not occur in a vacuum. Applicant is referred to the last two paragraphs of col.1 in Sellers.

Art Unit: 2859

Applicant should also note that Miyajima himself uses permanent magnets that are movable with respect to other permanent magnets. See permanent magnets 23 and permanent magnet 1 in Fig. 13.

The level of ordinary skill in the art of MRI magnet design is high. These magnets are required to produce highly homogeneous fields while diminishing all the deleterious effects produced by temperature changes, eddy currents hysteresis effects etc. The examiner submits that it would have been well within the purview of the ordinary skill artisan, to replace plugs 19 of Miyamoto with permanent magnets. Such change of magnetic material, would result in substantially the same structure, work in substantially the same manner and provide substantially the same result.

Allowable Subject Matter

4. Claims 12 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

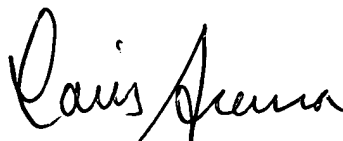
Art Unit: 2859

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Louis M. Arana whose telephone number is (571) 272-2236. The examiner can normally be reached on M-Thurs. Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F Gutierrez can be reached on (703) 308-3875. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Louis M. Arana
Primary Examiner
Art Unit 2859

Lma
8/26/04